

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

LAND SMOOTHING

(Ac.)

CODE 466

Definition

Removing irregularities on the land surface by use of special equipment.

Scope

This practice applies to operations classed as rough grading. Ordinarily, this does not require a complete grid survey. It does not apply to the "floating" done as a regular maintenance practice on irrigated land or the "planning" done as final step in precision land forming (462) or in irrigation land leveling (464).

Purpose

Improve surface drainage, provide for more effective use of precipitation, obtain more uniform planting depths, provide for more uniform cultivation, improve equipment operation and efficiency, improve terrace alignment, and facilitate contour cultivation.

Conditions where practice applies

This practice applies on areas where depressions, mounds, old terraces, turn-rows, and other surface irregularities interfere with the application of needed soil and water conservation and management practices.

It is limited to areas having adequate soil depth or where topsoil can be salvaged and replaced.

Design criteria

The extent of rough grading required and tolerances of the finished smoothing job shall be in keeping with the requirements of the planned cropping system.

Plans and specifications

Plans and specifications for land smoothing shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

Construction operations shall be carried out in such a manner that erosion and air and water pollution are minimized and held within legal limits.

The land to be smoothed shall be cleared of vegetative matter and trash.

Irregularities shall be smoothed to the degree required for the planned use and the requirements of subsequent tillage, floating, or planing to be performed.

Where possible, the ground surface should be plowed or disked prior to smoothing.

Planning considerations for water quantity and quality

Quantity

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, and evaporation.
2. Potential for changes in plant growth and transpiration because of changes in the volume of soil water.

Quality

1. Effect on erosion and the movement of sediment and soluble and sediment-attached substances carried by runoff.
2. Effects on the use and management of nutrients and pesticides.
3. Effects on downstream water quality.
4. Potential for earth moving to uncover or redistribute toxic materials, such as saline soils.

5. Effects on visual quality of downstream water resources.

Design Criteria

Land Smoothing (Drainage)

The smoothing work shall be done only as a part of an existing drainage system, or as a part of an adequate drainage plan in keeping with the land capabilities of the area.

The maximum land slope shall be that as given for land needing drainage or water disposal in the Field Office Technical Guide.

If mounded land is smoothed, is to be row cropped, and includes an appreciable area where the surface slope exceeds 0.5 percent, grassed waterways or outlets shall be provided.

Land smoothing (Irrigation)

The smoothing work shall be planned as an integral part of an overall farm irrigation system to facilitate the conservation use of soil and water resources.

The maximum overall land slope shall be that as given for land suitable for irrigation in the Field Office Technical Guide.

All smoothing work shall be planned so that the highest point in the field is far enough below the elevation of the water source to permit delivery of needed irrigation streams onto the field surface. The maximum field elevation shall be 0.4 foot below the water surface elevation at the point of delivery.

Land Smoothing (land to be Terraced or Contoured)

When done in connection with terracing, the land shall be suitable for terraces as outlined in the standard for terraces.

SPECIFICATION

Construction

Smoothing shall be accomplished to the extent that low and high areas are not more than 0.1 foot below or above the adjacent land surface for all land other than riceland. On riceland the low and high areas shall not be more than 0.2 foot above or below the adjacent land surface.

NOTEKEEPING

Design Survey

Mounded Land

Select sample area or areas, aggregating not less than 5 percent of the area of each field to be smoothed, which will be representative of the average conditions for the field, and in no case less than 4 acres (except where the field is smaller). Samples shall be taken individually on areas not larger than approximately 80 acres; or as many sample areas as are needed to obtain representative yardage figures.

As an example, for one field, a single area in a field may be a representative sample. On another field, two or more areas may be required due to a great variation in the number and size of the mounds.

For each area selected, mark the mounds, measure the average radius and the height of each mound, and record on bound or looseleaf notebook paper, Tabulation of Cubic Yards in Mounds. Yardage shall be taken from Table 4-N-7585, Table of Volumes in Mounds in Cubic Yards, Louisiana Irrigation Handbook.

The yardage determined for the sample area shall then be used to determine the yardage for the entire field.

Other Lands (No Mounds)

For each small field, or for each 80 acres approximately in larger fields, examine the area and determine visually if smoothing is needed. When visual need determinations are made, no recorded design survey notes are required. If in doubt, run profile down the natural field slope in the area which appears to be the most in need of smoothing. Take profile shots every 100 feet, or closer if needed.

Construction Layout

Mounded Lands

Construction layout is not required.

Other Lands (No Mounds)

Ordinarily, construction layout is not needed. If needed, stake and mark cuts and fills as required for the earthmoving process.

Record survey notes on bound or looseleaf notebook paper.

Construction Check

Run a profile down the land slope, for the full length of the field, through the approximate center of the area which appears least likely to meet specifications, taking shots at 100-foot intervals, or closer if needed. As a minimum, take a profile of each field, and on each 80 acres (Approximately) of larger fields.

In the event the profile shows a high or low area of more than 0.1 foot check side fall by running an additional profile as needed to determine if specifications have been met.

Recording Data

Record practice name, agreement number, REAP referral number, survey data, date, individuals making survey, field number, and show location of profiles taken in field notes, unless smoothed areas are small and scattered over the field. If such is the case, number the plots and reference them to the conservation plan or engineering map.

Check the notes carefully to determine that all specifications have been met. Date and sign statement "This practice meets specifications." Note any exceptions.

Recording Completed Practice

Outline area smoothed with solid yellow line on field office copy of the conservation map; or, if not available, on aerial photograph or overlay. See Standard Conservation Symbols. An overlay may be used in lieu of the conservation plan map to avoid overcrowding. Show acres, and date work completed in black ink.

Filing Notes and Records

See National Handbook of Conservation Practices, Louisiana Supplement.